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CLAIMS

We claim:

1.

A manual boat winch hoist control mechanism, comprising:

a handwheel with a central hub and a first threaded bore in said central hub;

a housing having an interior providing environmental protection;

a shaft having an outside threaded surface coupled at a first end to said first threaded

bore, and having a friction engaging member, and passing from said housing interior to an exterior thereof;

a friction thrust member located axially between said handwheel hub and said shaft friction engaging member providing a friction surface to frictionally engage said shaft friction engaging member, to thereby provide controllable slipping and locking up by change of pressure between said shaft friction engaging member and said friction thrust member; and

a one-way roller clutch, fixed against motion relative to said housing and coupled to said friction thrust member, that provides radial support and limits rotation of said friction thrust member to a single rotary direction about a rotary axis.

2. The manual boat winch hoist control mechanism of claim 1, further comprising a seal extending from said housing toward said shaft at least limiting the influx of environmental contaminants into said housing interior while permitting rotation of said handwheel and said shaft relative to said housing.

3. The manual boat winch hoist control mechanism of claim 1 further comprising:
 - a second bore in said handwheel central hub; and
 - a fixation fastener¹²² passing through said handwheel second bore and coupled to said shaft to limit travel of said handwheel relative to said shaft as said handwheel is rotated in a de-clutching direction.
 4. The manual boat winch hoist control mechanism of claim 3 where said fixation fastener is threaded to mate with threads in said shaft first end.
 5. The manual boat winch hoist control mechanism of claim 1 further comprising a friction disc¹³² between said friction engaging member¹²⁵ and said friction thrust member¹³⁴.
 6. The manual boat winch hoist control mechanism of claim 5 wherein said friction disc is generally shaped as a disc and mates with said shaft and said friction thrust member.
 7. The manual boat winch hoist control mechanism of claim 1 where said one-way roller clutch¹³⁶ is fixed against relative motion to said housing by threaded fasteners¹³⁹ passing through said housing and into threaded recesses in a clutch carrier, said clutch carrier further engaging said one-way roller clutch.
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8. A boat winch hoist control mechanism providing roller bearing rotation to raise said boat, and friction clutch slip to lower said boat, comprising:

a motive power source for inducing rotation in a first direction about an axis and in
a second direction of rotation opposed thereto;
a friction thrust member¹³⁴;
a rotary shaft¹²⁰ having a friction drive member¹²⁵ that is engageable with said friction
thrust member to prevent relative movement therebetween;
a one-way clutch¹³⁵ coupled to said friction thrust member which permits said friction
thrust member to rotate freely in a first shaft rotation direction and which
prevents rotation of said friction thrust member in a direction opposed to said
first shaft rotation direction; and
a friction clutch actuator^{114?} which engages said friction thrust member to said friction
drive member¹²⁵ responsive to relative rotary displacement between said motive
power source and said rotary shaft in a first direction about an axis and which
disengages said friction thrust member from said friction drive member
responsive to relative rotary displacement between said motive power source
and said rotary shaft in a second direction of rotation about said axis opposed
to said first direction.

9. The boat winch hoist control mechanism of claim 8 wherein said motive power source further comprises a handwheel suitable for rotation by a person.
10. The boat winch hoist control mechanism of claim 9 wherein said friction clutch actuator is engaged to couple rotation from said handwheel to said shaft when said handwheel is rotated

in a first handwheel direction of rotation and which is disengaged to permit relative rotation between said handwheel and said shaft when said handwheel is rotated in a second handwheel rotation direction, and, when said handwheel is released after rotation in said first direction, which prevents rotation of said shaft and thereby maintains said boat in a raised position.

11. The boat winch hoist control mechanism of claim 10 wherein when said handwheel is rotated in a second direction, opposite said first direction, said handwheel moves upon a threaded joint between said handwheel and said shaft, thereby reducing the engagement of said friction clutch and allowing rotation of said shaft in said second direction.
12. The boat winch hoist control mechanism of claim 10 where rotation of said shaft in said second direction, when said handwheel is held in a fixed rotational position, will cause said friction brake to engage by action of said roller clutch
13. The boat winch hoist control mechanism of claim 8 further comprising a housing having at least one seal to protect said one-way clutch from an exterior environment.
14. The boat winch hoist control mechanism of claim 13 further comprising a sealed chamber within said housing containing said friction thrust member, said one-way clutch, and said friction clutch actuator.

15. The boat winch hoist control mechanism of claim 14 further comprising:
- a cable reel having cable wrapped thereabout, said cable passing from said cable reel through said housing for connection to a boat lift; and
 - gearing within said housing which couples said cable reel to said rotary shaft and which reduces a rotary velocity from said rotary shaft to said cable reel.
16. The boat winch hoist control mechanism of claim 8 wherein said friction clutch actuator is coupled between said motive power source and said rotary shaft.
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17. A method of raising and lowering a water craft using a one-way clutch to prevent unintentional lowering of a water craft and a friction clutch to enable intentional lowering of said water craft, comprising the steps of:
- applying a rotary force in a first direction to a hub, and thereby rotating said hub in a first direction;
 - engaging a friction clutch responsive to said hub rotation in said first direction;
 - winding a cable about a cable reel responsive to said rotating and engaging to thereby raise said water craft to a first elevation;
 - discontinuing said applying of said rotary force to said hub;
 - locking a one-way clutch responsive to said discontinuing, and thereby maintaining said raised water craft in said first elevation;
 - establishing a rotary force in a second direction opposed to said first rotary force direction to said hub, and thereby rotating said hub in said second direction;

disengaging said friction clutch responsive to said hub rotation in said second direction; and
unwinding said cable from said cable reel responsive to said locking and disengaging.

18. The method of raising and lowering a water craft of claim 17, further comprising the step of increasing rotary force and decreasing an amount of rotation from said hub to said cable reel.
19. The method of raising and lowering a water craft of claim 17 further comprises the step of displacing said hub axially along said axis of rotation responsive to said step of rotating said hub in said second direction, said relative motion of said hub in turn initiating said disengaging step.